

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

Claim 1 (currently amended): ~~[[A]] The method of trapping condensable  $\text{AlCl}_3$  from a gas flow effluent from an aluminum etch reaction chamber comprising a mixture comprising  $\text{AlCl}_3$  and  $\text{Cl}_2$ , comprising~~ of claim 6, including:

directing the ~~gas flow~~ gaseous effluent at a volume flow rate, a mass flow rate, and a temperature into ~~[[a]] the first stage of [[a]] the trap chamber that comprises first trapping media with sufficient microsurface areas and of sufficient surface density for the volume flow rate, mass flow rate, and temperature of the gas flow to cause sufficient physical collisions of the  $\text{AlCl}_3$  with the microsurface areas when temperature of the first trapping media is ambient, to cool and condense~~ causes more than half of the  $\text{AlCl}_3$  in the gas flow gaseous effluent to condense on the first and second trapping media; and

directing the ~~gas flow~~ gaseous effluent with the  ~~$\text{Cl}_2$~~  and any remaining  $\text{AlCl}_3$  that was not condensed ~~on-in~~ the first ~~trapping media~~ stage into a second stage of the trap chamber that, which comprises ~~second~~ third trapping media with a microsurface density that is greater than the microsurface density of the first trapping media and that has sufficient microsurface areas and microsurface density for the volume flow rate, mass flow rate, and temperature of the ~~gas flow, gaseous effluent~~ to cause sufficient physical collisions of the  $\text{AlCl}_3$  ~~in the gas flow, when temperature of~~ with the second third trapping media is medium at ambient~~[[,]] temperature~~ to cool and condense the remaining ~~5—10% of the  $\text{AlCl}_3$  in the gas flow gaseous effluent~~ on the

~~second-third~~ trapping media, and thereby leaving the ~~gas flow~~ gaseous effluent after the second stage substantially free of  $\text{AlCl}_3$ .

Claim 2 (currently amended): The method of claim 1, comprising:

directing the ~~gas flow~~ gaseous effluent at a volume flow rate, a mass flow rate, and a temperature into a first stage of a trap chamber ~~that comprises first trapping media with sufficient surface areas and of sufficient surface density for the volume flow rate, mass flow rate, and temperature of the gas flow to cause sufficient physical collisions of the  $\text{AlCl}_3$  with the surface areas when temperature of the first trapping media is ambient, to cool and condense~~ causes more than half 90–95% of the  $\text{AlCl}_3$  in the gas flow ~~[[on]]~~ to condense in the first trapping media stage; and

directing the ~~gas flow~~ gaseous effluent with ~~the  $\text{Cl}_2$  and any the~~ remaining 5–10%  $\text{AlCl}_3$  that was not condensed ~~on-in~~ the first trapping media stage into a second trapping stage of the trap chamber ~~that comprises second, wherein the third trapping media with a surface density that is greater than the microsurface density of the first trapping media and that has~~ have sufficient surface microsurface areas and microsurface density for the volume flow rate, mass flow rate, and temperature of the ~~gas flow, gaseous effluent~~ to cause sufficient physical collisions of the  $\text{AlCl}_3$  in the gas flow, when temperature of the second trapping media is ambient, to cool and condense the remaining 5 - 10% of the  $\text{AlCl}_3$  in the ~~gas flow~~ gaseous effluent to condense on the ~~second~~ third trapping media, and thereby leaving the ~~gas flow~~ gaseous effluent after the second stage substantially free of  $\text{AlCl}_3$ .

Claim 3 (currently amended): The method of claim 1, including ~~maintaining the gas flow~~ flowing the gaseous effluent from the reaction chamber to the first stage of the trap chamber at a temperature above 70 °C.

Claim 4 (currently amended): The method of claim 1, including directing the ~~gas flow~~ gaseous effluent into the first stage of the trap chamber at a volume flow rate in a range of

100 - 200 sccm and at a mass flow rate of 0.12 g/min. with the surface density of the first trapping media in a range of at least  $2 \text{ in}^2/\text{in}^3$  to less than  $15 \text{ in}^2/\text{in}^3$  and with the surface microsurface density of the second third trapping media in a range of more than  $2 \text{ in}^2/\text{in}^3$  to less than  $15 \text{ in}^2/\text{in}^3$ .

Claim 5 (currently amended): The method of claim 4, wherein the surface first trapping medium has a microsurface density of ~~the first trapping media~~ is  $8 \text{ in}^2/\text{in}^3$  and the surface density of the second third trapping media is  $10 \text{ in}^2/\text{in}^3$ .

Claim 6 (currently amended): ~~The method of claim 1, including~~ A method of trapping condensable  $\text{AlCl}_3$  from a gaseous effluent of an aluminum etch reaction chamber, comprising:

directing the ~~gas flow~~ gaseous effluent via an inlet into the a first stage of the a trap chamber, ~~wherein the first trapping media includes~~ in which a first trapping medium is positioned ~~in the first stage of the trap chamber~~ at an inlet-to-first medium distance from the inlet[[,]] and in which a second trapping medium is positioned ~~in the first stage of the trap chamber~~ at an inlet-to-second medium distance from the inlet, and wherein the inlet-to-second medium distance is greater than the inlet-to-first medium distance, but still close enough to the inlet such that lower partial pressure of  $\text{AlCl}_3$  adjacent the second medium as compared to increasing partial pressure adjacent increasing build-up of condensed, solid  $\text{AlCl}_3$  on the first medium, due to lesser heat transfer efficiency of solid  $\text{AlCl}_3$  as compared to the second medium, draws  $\text{AlCl}_3$  preferentially toward the second medium before  $\text{AlCl}_3$  build-up on the first medium occludes the inlet.

Claim 7 (currently amended): The method of claim 6, wherein the first trapping medium is positioned radially outward from the inlet, and the second trapping medium is positioned axially below the inlet.

Claim 8 (currently amended): A method of removing condensable aluminum chloride vapor in an effluent produced by an aluminum etching system, said method comprising:

flowing said effluent through a disposable element, ~~wherein~~ to cool, condense, and solidify said condensable aluminum chloride vapor is cooled, condensed, and solidified as condensed aluminum chloride solid on said disposable element, wherein said disposable element comprises:

an outer screen column;

an inner screen column contained within said outer screen column and in spaced relation to said outer screen column such that a space is defined between said outer screen column and said inner screen column, and wherein an inner core is defined by said inner screen column;

a first trapping medium enclosing said outer screen column;

a second trapping medium disposed within said inner screen column;

and

a third trapping medium disposed within said space defined by said outer screen column and said inner screen column.

Claim 9 (cancelled):

Claim 10 (original): The method of claim 8, wherein said disposable member is removably contained in a housing, wherein said housing encloses a chamber, said housing having an inlet opening adapted to receive said effluent into said chamber and an outlet opening.

Claim 11 (currently amended): The method of claim ~~[[9]]~~ 8, wherein said trapping ~~medium comprises a~~ media comprise mesh.

Claim 12 (original): The method of claim 11, wherein said mesh is metal wire.

Claim 13 (original): The method of claim 12, wherein said metal wire is intertwined or interlaced to form a metal fabric and said mesh comprises multiple layers of said metal fabric.

Claim 14 (original): The method of claim 12, wherein said metal wire is stainless steel.

Claim 15 (original): The method of claim 11, wherein said mesh has a surface density (Surface Area/Unit Volume) in a range of about 2 to 15 in<sup>2</sup>/in<sup>3</sup>.

Claim 16 (currently amended): The method of claim ~~[[9]]~~ 10, wherein said housing has a length and wherein said second trapping medium has a length that is about one third to one half the length of said housing.

Claim 17 (currently amended): The method of claim ~~[[9]]~~ 8, wherein said inner screen column comprises a wire screen.

Claim 18 (original): The method of claim 17, wherein said wire screen is a 4x4 to 8x8 mesh screen.

Claim 19 (currently amended): The method of claim ~~[[10]]~~ 8, wherein said outer screen column is a solid metal sheet.

Claim 20 (original): The method of claim 10, wherein said housing further comprises a guide for centering and anchoring said disposable element in said housing.

Claim 21 (currently amended): The method of claim ~~[[9]]~~ 8, wherein said inner screen column is positioned over said guide.

Claim 22 (original): The method of claim 8, wherein said disposable element is removable from said chamber and replaceable with another disposable element.

Claim 23 (currently amended): The method of claim ~~[[8]]~~ 10, wherein said housing is an elongated cylinder.

Claim 24 (currently amended): A method of preventing build-up of solid aluminum chloride in a pump line that carries etching effluent comprising condensable aluminum chloride vapor molecules and chlorinated reaction gas molecules, said method comprising flowing said effluent through a disposable element, wherein said disposable element comprises trapping media for cooling, condensing, and solidifying said condensable aluminum chloride vapor molecules, wherein said trapping medium condenses and collects said condensable aluminum chloride vapor as condensed aluminum chloride solid, and wherein said disposable element comprises:

an outer screen column;

an inner screen column contained within said outer screen column and in spaced relation to said screen column such that a space is defined between said outer screen column and said inner screen column, and wherein an inner core is defined by said inner screen column;

a first trapping medium enclosing said screen column;

a second trapping medium disposed within said inner screen column; and

a third trapping medium disposed within said space defined by said outer screen column and said inner screen column.

Claim 25 (cancelled):

Claim 26 (original): The method of claim 24 wherein said disposable member is removably contained in a housing, wherein said housing encloses a chamber, said housing having an inlet opening adapted to receive said effluent into said chamber and an outlet opening.

Claim 27 (currently amended): The method of claim [[25]] 24, wherein said trapping medium comprises a mesh.

Claim 28 (original): The method of claim 27, wherein said mesh is metal wire.

Claim 29 (original): The method of claim 28, wherein said metal wire is intertwined or interlaced to form a metal fabric and said mesh comprises multiple layers of said metal fabric.

Claim 30 (original): The method of claim 28, wherein said metal wire is stainless steel.

Claim 31 (original): The method of claim 27, wherein said mesh has a surface density (Surface Area/Unit Volume) in a range of about 2 to 15 in<sup>2</sup>/in<sup>3</sup>.

Claim 32 (currently amended): The method of claim [[25]] 26, wherein said housing has a length and wherein said second trapping medium has a length that is about one third to one half the length of said housing.

Claim 33 (currently amended): The method of claim [[25]] 24, wherein said inner screen column comprises a wire screen.

Claim 34 (original): The method of claim 33, wherein said wire screen is a 4x4 to 8x8 mesh screen.

Claim 35 (currently amended): The method of claim [[25]] 24, ~~wherein said~~ including an outer shield is a solid metal sheet surrounding said first trapping medium.

Claim 36 (original): The method of claim 26, wherein said housing further comprises a guide for centering and anchoring said disposable element in said housing.

Claim 37 (original): The method of claim 26, wherein said inner screen column is positioned over said guide.

Claim 38 (original): The method of claim 26, wherein said disposable element is removable from said chamber and replaceable with another disposable element.

Claim 39 (original): The method of claim 26, wherein said housing is an elongated cylinder.